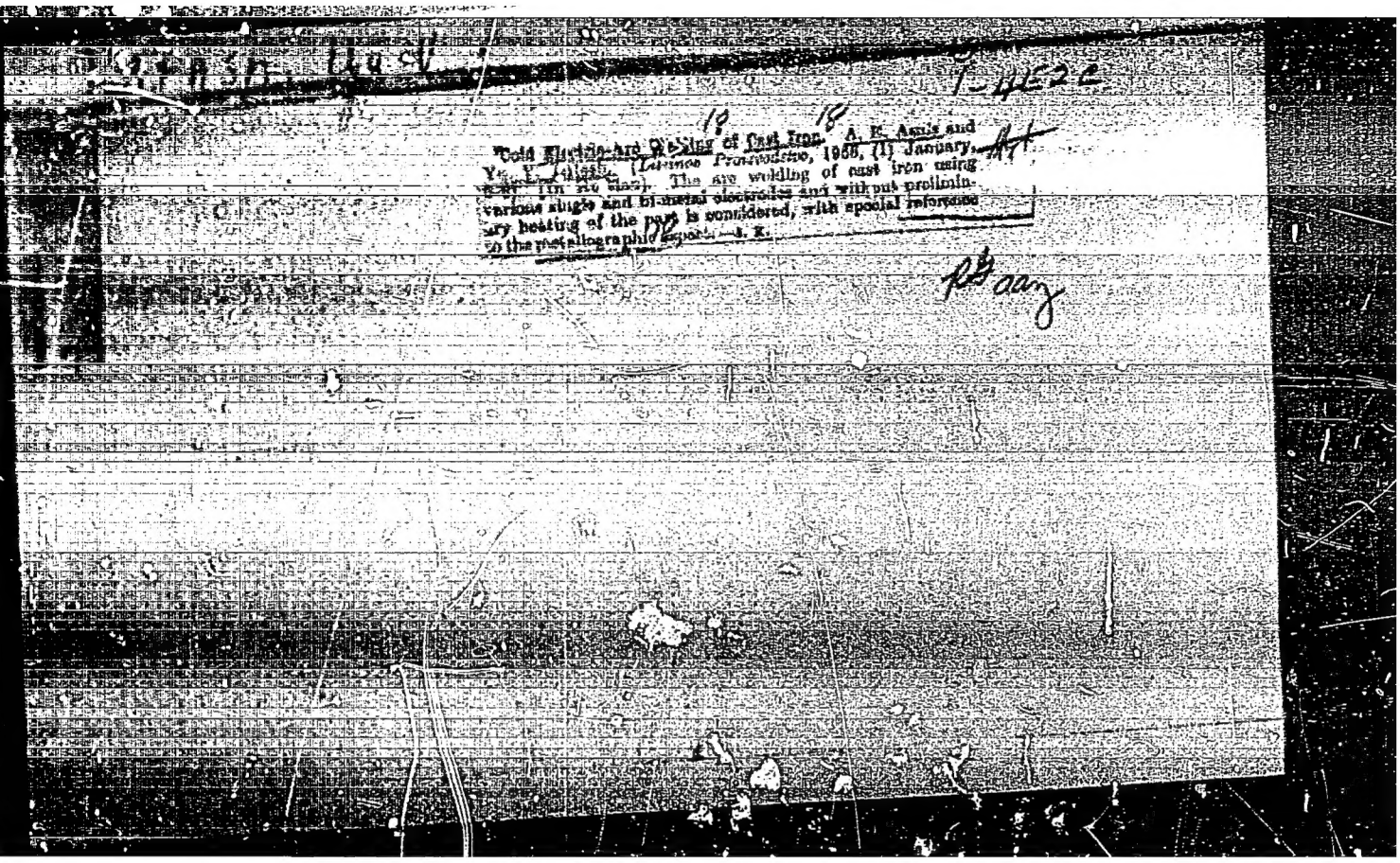
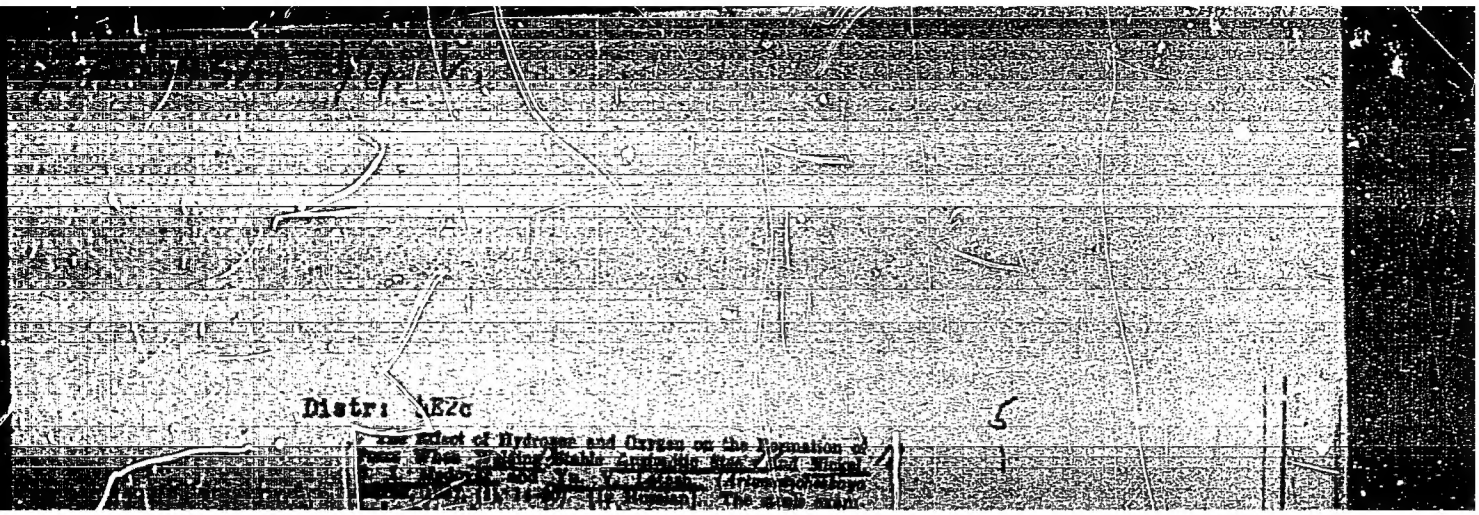
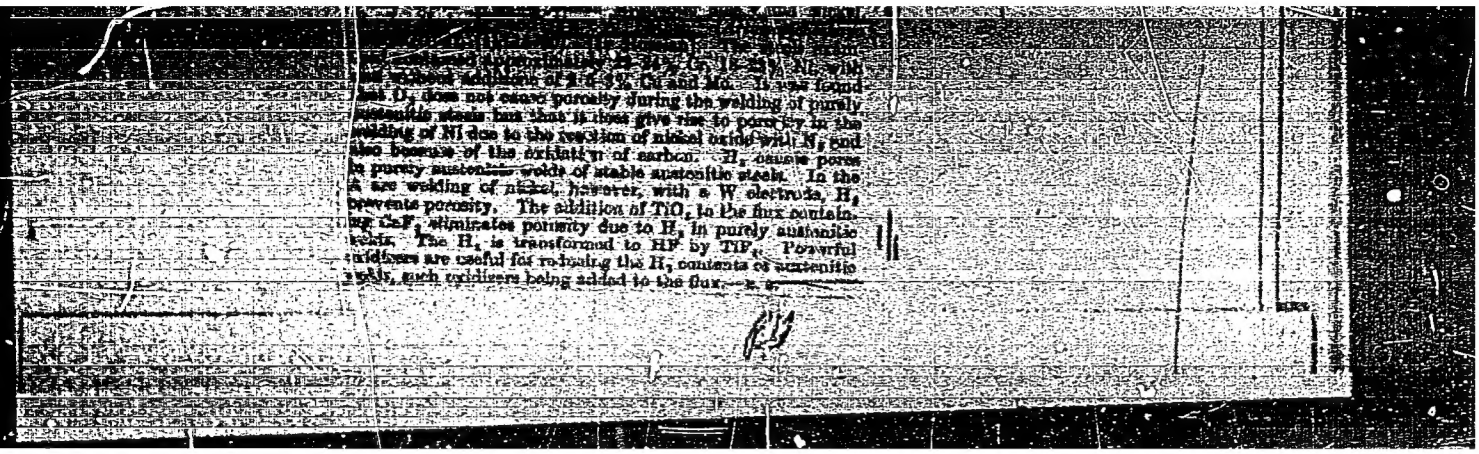


Cold Electric-Arc Welding of Cast Iron. A. K. Asnis and V. L. [illegible]. (Svarochnoe Proizvodstvo, 1956, (1) January, [illegible]) [illegible]. The arc welding of cast iron using various single and bi-metal electrodes and with out preliminary heating of the part is considered, with special reference to the metallographic [illegible]. A. K.





LATASH, Yu.V.

MEDOVAR, B.I.; LANGER, N.A.; LATASH, Yu.V.

Transgranular corrosion by sulfuric acid of austenite stable acid-resistant steels and welds under compressive stress. Avtom. svar. 10 no.1:46-50 Ja-F '57. (MLRA 10:4)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR.
(Steel alloys--Corrosion) (Sulfuric acid)
(Strains and stresses)

LATASH Yu. V.

MEDOVAR, B.I.; LATASH, Yu.V.

Pure austenite welded joints resistant to hot (crystallization) cracks. Avtom. svar. 10 no.2:32-45 Mr-Ap '57. (MLRA 10:6)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona Akademii nauk USSR.
(Steel--Welding) (Austenite)

LATASH, Yu.V.

STERENBOGEN, Yu.A.; LATASH, Yu.V.; MEDOVAR, B.I.; ZAYTSEV, Yu.N.

Desulfuration of the welding melt for electric arc welding and automatic seam welding with flux. Avtom.svar. 10 no.4:71-74 Jl-Ag '57. (MIRA 10:10)

1. Ordena Trudovog Krasnogo Znameni Institut elektrosvarki imeni Ye.O.Patona Akademii nauk USSR.
(Desulfuration) (Electric welding)

LATASH, Yu. V.

DUBROV, N.F., kand. tekhn. nauk; MIKHAYLOV, O.A., kand. tekhn. nauk; FEL'DMAN, I.A.; DANILOV, A.M.; SOROKIN, P.Ya., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; BUTAKOV, D.K., kand. tekhn. nauk, dots.; SOYFER, V.M.; LATASH, Yu.V., mladshiy nauchnyy sotrudnik; ZAMOTAYEV, S.P.; BEYTEL'MAN, A.I.; SAPKO, A.I.; PETUKHOV, G.K., kand. tekhn. nauk; YEDNERAL, F.P., kand. tekhn. nauk, dots.; LAPOTYSHKIN, N.M., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; ROZIN, R.M.; NOVIK, L.M., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; LAVRENT'YEV, B.A.; SHILYAYEV, B.A.; SHUTKIN, N.I.; GNUCHEV, S.A., kand. tekhn. nauk, starshiy nauchnyy sotrudnik; LYUDEMAN, K.F., doktor-inzh., prof.; GRUZIN, V.G., kand. tekhn. nauk; BARIN, S.Ya.; POLYAKOV, A.Yu., kand. tekhn. nauk; FEDCHENKO, A.I.; AGEYEV, P.Ya., prof., doktor; SAMARIN, A.M.; BOKSHITSKIY, Ya.M., kand. tekhn. nauk; GARNYK, G.A., kand. tekhn. nauk; MARKARYANTS, A.A., kand. tekhn. nauk; KRAMAROV, A.D., prof., doktor tekhn. nauk; TEDER, L.I.; DANILOV, P.M.

Discussions. Biul. TSNIICHM no.18/19:69-105 '57. (MIRA 11:4)

1. Direktor Ural'skogo instituta chernykh metallov (for Dubrov). 2. Direktor TSentral'nogo instituta informatsii chernoy metallurgii (for Mikhaylov). 3. Nachal'nik nauchno-issledovatel'skogo otdela osobogo konstruktorskogo byuro tresta "Elektropech'" (for Fel'dman). 4. Nachal'nik martenovskoy laboratorii Zlatoustovskogo metallurgicheskogo zavoda (for Danilov, A.M.). 5. Laboratoriya protsessov stalevareniya Instituta metallurgii Ural'skogo filiala AN SSSR (for Sorokin).

(Continued on next card)

DUBROV, N.F.---(continued) Card 2.
6. Ural'skiy politekhnicheskiy institut (for Butakov). 7. Starshiy inzhener Bryanskogo mashinostroitel'nogo zavoda (for Soyfer). 8. Institut elektrosvarki im. Patona AN URSR (for Latash). 9, Nachal'nik TSentral'noy zavodskoy laboratorii "Uralmashzavoda" (for Zamotayev). 10. Dnepropetrovskiy metallurgicheskiy institut (for Sapko). 11. Moskovskiy institut stali (for Yedneral). 12. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Gnuchev, Lapotyshkin). 13. Starshiy master Leningradskogo zavoda im. Kirova (for Rozin). 14. Institut metallurgii im. Baykova AN SSSR (for Novik, Polyakov, Garnyk). 15. Nachal'nik tekhnicheskogo otdela zavoda "Bol'shevik" (for Lavrent'yev). 16. Starshiy inzhener tekhnicheskogo otdela Glavspetsstali Ministerstva chernoy metallurgii (for Shilyayev). 17. Zamestitel' nachal'nika tekhnicheskogo otdela zavoda "Elektrostal'" (for Shutkin). 18. Freybergskaya gornaya akademiya, Germanskaya Demokraticheskaya Respublika (for Lyudeman). 19. Zaveduyushchiy laboratoriyey stal'nogo lit'ya TSentral'nogo nauchno-issledovatel'skogo instituta tekhnologii i mashinostroyeniya (for Gruzin). 20. Starshiy master elektrostaleplavil'nykh pechey Uralvagonzavoda (for Barin). 21. Zamestitel' nachal'nika elektrostaleplavil'nogo tsekha zavoda "Sibelektrostal'" (for Fadchenko). 22. Zaveduyushchiy kafedroy metallurgii stali i elektrometallurgii chernykh metallov Leningradskogo politekhnicheskogo instituta (for Ageyev). 23. Zamestitel' direktora Instituta metallurgii im. Baykova AN SSSR, chlen-korrespondent AN SSSR (for Samarin).

(Continued on next card)

APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928810001-2"

DUBROV, N.F.---(continued) Card 3.
24. Nachal'nik laboratorii TSentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii (for Bokshitskiy). 25. Zaveduyushchiy kafedroy elektrometallurgii Sibirskogo metallurgicheskogo instituta (for Kramarov). 26. Nachal'nik elektrostaleplavil'nogo tsekha Kuznetskogo metallurgicheskogo kombinata (for Tedor). 27. Nachal'nik elektrometallurgicheskoy laboratorii Kuznetskogo metallurgicheskogo kombinata (for Danilov, P.M.).
(Steel--Metallurgy)

137-58-6-11784

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 83 (USSR)

AUTHORS: Paton, B.Ye., Medovar, B.I., Latash, Yu.V.

TITLE: Electrical Smelting of High-alloy Steels and Alloys in a Water-cooled Crystallizer (Elektricheskaya vyplavka vysokolegirovannoy stali i splavov v vodookhlazhdayemom kristallizatore)

PERIODICAL: Tr. Nauchno-tekhn. o-va chernoy metallurgii, 1957, Vol 18, pp 623-628

ABSTRACT: The Electric Welding Institute im. Ye.O. Paton of the Academy of Sciences, Ukrainian SSR, has developed a method of making ingots by continuous build-up of metal in a water-cooled copper crystallizer, using an arcless electrical slag welding process. The heat source is fused electrically-conductive slag, through which an electric current is passed from a consumable electrode to the ingot. Wires of 5-8 mm diameter may be used as the electrodes. The alloying elements are introduced in the form of wire or granules. The electrode and the alloys, immersed in the slag, attain a temperature of up to 2000°C, fuse, and form an ingot. The ingot descends as it builds up. The consumption of slag-formers as 1-2% of the

Card 1/2

137-58-6-11784

Electrical Smelting of High-alloy (cont.)

weight of the ingot. This method may also be used to cast hollow ingots for tube manufacture. An equipment, the R-813, has been developed to cast round solid and hollow ingots of 135-300 mm diameter, 1500 mm in length, at an output of 150 kg/hr. If the composition of the smelted steel includes Ti or Al, the slags used contain CaF_2-CaO-Al_2O_3 compounds. The m.p. and viscosity of the slag have a significant effect on the surface quality of the ingot produced. The longitudinal orientation of the crystals and the absence of axial porosity, scabs, and cracks contribute to make this a metal of optimum plasticity in hot mechanical treatment. The area of application of this method is the production of tough and resilient steels and alloys.

V.B.

1. Steel--Production 2. Alloys--Production 3. Alloys--Casting 4. Steel--Casting
5. Electrical equipment--Applications

Card 2/2

SOV-125-58-2-2/11

AUTHORS: Medovar, B.I., Latash, Yu.V., and Safonnikov, A.N.

TITLE: Electric Slag Welding With Plate Electrodes of Chrome-Nickel Austenitic Steels and Heat-Resistant Alloys (Elektroshlakovaya svarka plastinchatym elektrodom khromonikelevykh austenitnykh staley i zharoprochnykh splavov)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 2, pp 9-19 (USSR)

ABSTRACT: The article presents experimental data on and discusses some metallurgical and technological peculiarities of electric-slag welding with plate electrodes and electric-conducting "AN-25" flux, proposed by G.S. Tyagun-Belous, used for welding short seams in austenitic steel and heat-resistant alloy rods with cross sections up to 30,000 mm^2. In developing the new method, it was stated that correlations exist between the physical-chemical properties of the slag and specific deficiencies of the weld joints in the form of unwelded portions. It was proved that the use of fluorine fluxes ensures complete passage of easy-oxidizing additions, such as aluminum, titanium and boron, from the base and electrode metal into the seam metal. Information includes technological recommendations for

Card 1/2

Electric Slag Welding With Plate Electrodes of Chrome-Nickel Austenitic Steels and Heat-Resistant Alloys

welding different grades of steels and alloys. (Table 2). There are 7 photos, 3 tables and 4 Soviet references.

ASSOCIATION: Institut elektrosvarki imeni Ye.O. Patona AN USSR (Institute of Electric Welding imeni Ye.O. Paton, AS UkrSSR)

SUBMITTED: December 2, 1957

1. Steel--Welding

AUTHOR: Latash, Yu.V., Engineer 125-58-6-9/14

TITLE: Some Peculiarities of the Fusion Process of Large-Section Electrodes in Electric-Slag Welding (Nekotoryye osobennosti elektroshlakovoy plavki raskhoduyemykh elektrodov bol'shogo secheniya)

PERIODICAL: Avtomaticheskaya Svarka, 1958, Nr 6, pp 76 - 83 (USSR)

ABSTRACT: Information is presented on results of experiments in electric-slag welding with large-diameter cylindrical electrodes. Ingots of 100 mm diamter, and 200 - 220 m height, were cast in a water-cooled copper mold and fused with medium-carbon steel round rods of 36, 50 and 65 mm diameter, and experimental "ANF-6"-flux of 70% CAF_2 and 30% Al_2O_3. The technology of experiments is described. The influence of the shape of the electrode tip on the stability of the fusion process was determined. The effect of the slag-bath depth on the process of electrode fusion, and on the depth of metal bath was established. There are 5 figures, 4 graphs, 1 table and 4 Soviet references.

Card 1/2

125-58-6-9/14

Some Peculiarities of the Fusion Process of Large-Section Electrodes in Electric-Slag Welding

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR(Order of Labor "Red Banner" Institute of Electric Welding im. Ye. O. Paton, AS UkrSSR)

SUBMITTED: November 5, 1957.
AVAILABLE: Library of Congress
Card 2/2 1. Welding-Electrodes 2. Electrodes-Development 3. Electrodes-Fusion

AUTHORS: Medovar, B.I., Latash, Yu.V. SOV-125-58-8-4/16

TITLE: The Effect of the Kind and Polarity of Current on Desulfurization of Liquid Metal in the Electric-Slag Welding Process (Vliyaniye roda i polyarnosti toka na obesserivaniye zhidkogo metalla pri elektroshlakovom protsesse)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 8, pp 27-31 (USSR)

ABSTRACT: With reference to existing data, desulfurization of liquid metal in electric slag welding is discussed and experiments are described which were carried out on electric-slag remelting of "40"-grade steel electrodes in a water-cooled crystallizer. The following conclusions are made: Desulfurization depends on the kind and polarity of current, i.e. it is more intensive with a.c. and less intensive with d.c. of inverted polarity (plus on the electrode). Desulfurization of metal was not observed with current of direct polarity (minus on the electrode); in this case, even passage of sulfur from slag into metal was possible. Replacement of CaO by MgO in the slag on a CaF_2 basis does not reduce its desulfurizing capacity and can be recommended, as such slags are less prone to hydration. The authors thank Doctor of Technical Sciences O.A. Yesin for his valuable advice.

Card 1/2

SOV-125-58-8-4/16

The Effect of the Kind and Polarity of Current on Desulfurization of Liquid Metal in the Electric-Slag Welding Process

There are 2 tables and 13 Soviet references.

ASSOCIATION: Institut elektrosvarki imeni Ye.O. Patona AN USSR (Institute of Electric Welding imeni Ye.O. Paton, AS UkrSSR)

SUBMITTED: May 7, 1958

1. Welding 2. Liquid metals--Desulfurization 3. Electric current --Effectiveness

Card 2/2

SOV/125-58-11-2/16

AUTHORS: Paton, B.Ye., Medovar, B.I. and Latash, Yu.V.

TITLE: The Electric Slag Remelting of Steels and Alloys in a Copper Water-Cooled Crystallizer (Elektroshlakovyy pereplav staley i splavov v mednom vodookhlazhdayemom kristallizatore)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 11, pp 5-15 (USSR)

ABSTRACT: Information is given on a new method to improve the properties of various steel grades and alloys with the use of electric slag melting of electrodes in a water-cooled copper crystallizer. Rods can be obtained which are heavy and large in diameter. The most important advantage of the new method is the possibility to use alternating current. It was first introduced in May 1958 at the "Dneprospetsstal'" plant on a special electric slag remelting device designed by the Institute of Electric Welding imeni Ye.O. Paton. The authors thank Senior Laboratory Worker L.I. Belyatsev and other workers from the Yuzhno-trubnyy zavod (Southern Pipe Plant), the Novo-Kramatorskiy mashinostroitel'nyy zavod (Novo-Kramatorskiy Machinebuilding Plant) and "Elektrostal'" plant for their cooperation in developing the new method.

Card 1/2

SOV/125-58-11-2/16

The Electric Slag Remelting of Steels and Alloys in a Copper Water-Cooled Crystallizer

There are 2 photos, 1 deagram, 6 sets of microphotos and 23 references, 10 of which are English, 1 German and 12 Soviet.

ASSOCIATION: Institut elektrosvarki imeni Ye.O. Patona (Institute of Electric Welding imeni Ye.O. Paton, AS Ukr SSR)

SUBMITTED: August 22, 1958

Card 2/2

LATASH, Yu. V.

Some peculiarities of large diameter consumable electrode melting during the process of automatic seam welding under flux. Avtom. svar. 11 no. 6:76-83 Je '58. (MIRA 11:7)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye. O. Patona AN USSR.
(Electric welding--Equipment and supplies)

SOV/125-58-12-3/13

AUTHORS: Latash, Yu.V., and Tyagun-Belous, G.S.

TITLE: The Effect of Slag Composition on the Fusing of Thick Electrodes in the Electric Slag Process (Vliyaniye sostava shlaka na plavleniye elektroda bol'shogo secheniya pri elektroshlakovom protsesse)

PERIODICAL: Avtomaticheskaya svarka, 1958, Nr 12, pp 17-27 (USSR)

ABSTRACT: As the existing data does not determine the effect of flux composition and its electric conductivity on the technical-economic characteristics of the electric slag welding process with large section electrodes, special tests were carried out with slags of the CaF_2-Al_2O_3 system. The effect of slag composition in the electric slag process was investigated with the use of grade 45 steel electrodes of 90 mm diameter in a copper water-cooled crystallizer. The tests are described in detail and the following conclusions are made: 1) in fusing with thick electrodes, the reduction of the electro-conductivity of the slag leads to an increase in temperatures of the slag bath, increased productivity and a reduced consumption of electric power at the same electric capacity; 2) with a reduced electro-conductivity of the

Card 1/2

The Effect of Slag Composition on the Fusing of Thick Electrodes in the Electric Slag Process

slag, the electric-slag process technology becomes stable with reduced current; 3) bubbling of the slag bath in currents exceeding the given voltage was caused by arc discharges between the electrode tip and the metal pool. On the basis of results obtained, the use of CaF_2-Al_2O_3 fluxes containing 40 - 45% Al_2O_3 is recommended.
There are 7 tables, 3 diagrams, 5 graphs, 1 oscillogram and 17 Soviet references.

ASSOCIATION: Institut elektrosvarki imeni Ye.O. Patona (Institute of Electric Welding imeni Ye.O. Paton)

SUBMITTED: September 28, 1958

LATASH, Yu.V.

PATON, B. Ye.; MEDOVAR, B. I.; LATASH, Yu. V.; MAKSIMOVICH, B. I.

Elektroshlakovyi pereplav raskhodyashchikhsya elektrodov v vodookhlazhdayemom kristallizatore.

report submitted for the 5th Physical Chemical Conference on Steel Production Moscow, 30 Jun 1959.

LATASH, Yu.V.

PHASE I BOOK EXPLOITATION SOV/4220

Asnis, Arkadiy Yefimovich, and Yuriy Vadimovich Latash

Svarka chuguna (Welding of Cast Iron) Moscow, Mashgiz, 1959. 63 p. (Series: Biblioteka svarshchika), 10,000 copies printed.

Editorial Board: A. Ye. Asnis, A.A. Kazimirov, B.I. Medovar, Candidate of Technical Sciences, B. Ye. Paton (Resp. Ed.), and V.V. Podgayetskiy; Ed. of this book: B.I. Medovar; Chief Ed. (Southern Division, Mashgiz): V.K. Serdyuk, Engineer; Ed. of Publishing House: V.V. Mayevskiy, Engineer.

PURPOSE: This booklet is intended for welders.

COVERAGE: The book deals with gas and electric-arc welding of cast iron. Existing methods of electric-arc welding without preheating are analyzed. Materials used in welding are described, and some practical data on welding technique are given. Examples of the proper execution of some welding jobs are provided. No personalities are mentioned. There are 9 references, all Soviet.

Card 1/3

LATASH, Yu. V., Cand of Tech Sci -- (diss) "Improving the Quality of Steel and Alloys on the Basis of an Electric Slag Welding Process," Kiev, 1959, 11 pp (Institute of Electric Welding im Ye. O Paton, Acad of Sci UkSSR) (KL, 2-60, 113)

LATASH, Yu. V.

PHASE I BOOK EXPLOITATION SOV/3559

Akademiya nauk SSSR. Institut metallurgii. Nauchnyy sovet po probleme zharoprochnykh splavov

Issledovaniya po zharoprochnym splavam, t. 5 (Investigations of Heat-Resistant Alloys, Vol 5) Moscow, Izd-vo AN SSSR, 1959. 423 p. Errata slip inserted. 2,000 copies printed.

Ed. of Publishing House: V.A. Klimov; Tech. Ed.: I.F. Kuz'min; Editorial Board: I.P. Bardin, Academician, G.V. Kurdyumov, Academician, N.V. Ageyev, Corresponding Member, USSR Academy of Sciences (Resp. Ed.), I.A. Oding, I.M. Pavlov, and I.F. Zudin, Candidate of Technical Sciences.

PURPOSE: This book is intended for metallurgical engineers, research workers in metallurgy, and may also be of interest to students of advanced courses in metallurgy.

COVERAGE: This book, consisting of a number of papers, deals with the properties of heat-resisting metals and alloys. Each of the papers is devoted to the study of the factors which affect the properties and behavior of metals. The effects of various elements such as Cr, Mo, and W on the heat-resisting properties of various alloys are studied. Deformability and workability of certain metals as related to the thermal conditions are the object of another study described. The problems of hydrogen embrittlement, diffusion and the deposition of ceramic coatings on metal surfaces by means of electrophoresis are examined. One paper describes the apparatus and methods used for growing monocrystals of metals. Boron-base metals are critically examined and evaluated. Results are given of studies of interatomic bonds and the behavior of atoms in metal. Tests of turbine and compressor blades are described. No personalities are mentioned. References accompany most of the articles.

2/2

Yu.V. Latash

24(8) PHASE I BOOK EXPLOITATION SOV/2117

Soveshchaniye po eksperimental'noy tekhnike i metodam vysokotempera-turnykh issledovaniy, 1956

Eksperimental'naya tekhnika i metody issledovaniy pri vysokikh tem-peraturakh; trudy soveshchaniya (Experimental Techniques and Methods of Investigation at High Temperatures; Transactions of the Conference on Experimental Techniques and Methods of Investigation at High Temperatures) Moscow, AN SSSR, 1959. 789 p. (Series: Akademiya nauk SSSR. Institut metallurgii. Komissiya po fiziko-khimicheskim osnovam proizvodstva stali) 2,200 copies printed.

Resp. Ed.: A.M. Samarin, Corresponding Member, USSR Academy of Sciences; Ed. of Publishing House: A.L. Bankvitser.

PURPOSE: This book is intended for metallurgists and metallurgical engineers.

COVERAGE: This collection of scientific papers is divided into six parts: 1) thermodynamic activity and kinetics of high-temperature processes 2) constitution diagram studies 3) physical properties of liquid metals and slags 4) new analytical methods and production of pure metals 5) pyrometry, and 6) general questions. For more specific coverage, see Table of Contents.

Stroyev, A.S., Ye.S. Ovsepyan, and A.M. Ivanov. Arc Melting of Molybdenum in Vacuum 470

The high degree of purity necessary for satisfactory deformation of molybdenum can be obtained in electric arc furnaces only with high vacua of the order of 10^{-3} mm Hg and with proper deoxidation. Ingots weighing up to 15 kg, made under these conditions, are free of defects in the central zone, irrespective of the rate of cooling after melting. Because of their relatively fine grain structure and the distinctness of their grain boundaries, such ingots can be deformed by any method including hammer forging provided proper cooling and reduction conditions are adhered to. The deformed molybdenum exhibits satisfactory ductility characteristics at room temperature.

Fogel', A.A. Noncrucible Melting by the Induction-Heating Method 478

Berezin, A.B., and Yu.P. Stepanov. Production of High-purity Aluminum by Zonal Melting 489

The method, based on the separation of elements during crystallization, makes it possible to obtain aluminum 99.9999 percent pure, but is at present very costly and time consuming.

Paton, B.Ye., B.I. Medovar, V.Ye. Paton, Yu.V. Latash. New Method for "Electrical Casting" of Ingots 495

The ingot is formed of metal from one or more melting electrodes.

Card 18/32

SOV/125-59-3-5/13

18(5),25(5)
AUTHOR: Latash, Yu.V., and Medovar, B.I.

TITLE: Permeability of the Slag in Electric Welding (O gazopronitsayemosti svarochnykh shlakov pri elektroshlakovom protsesse)

PERIODICAL: Avtomaticheskaya svarka, 1959, Vol 12, Nr 3, pp 45-50 (USSR)

ABSTRACT: This article refers to results of the penetration of hydrogen through the slag of steel 1Kh18N9T, in the process of electric welding, and investigates the use of different types of flux. It emerges that with the hydrogen penetrating into the metal, the amount of titanium residue increases. The probable formulae for this oxidation are given under (2) and (3). Then the interrelation between the hydrogen content of the various types of flux (compiled in Tab. 1) and the titanium content of the metals in question are dealt with. The permeability was measured in atmospheric air, Argon and saturated vapor of H_2O. (Tab. 2 and Fig. 2). The result showed the low-

Card 1/2

SOV/125-59-3-5/13

Permeability of the Slag in Electric Welding

est permeability for silicate flux (AN8) and a high degree of permeability for ANF 7. There are 4 tables, 1 graph and 11 references, 10 of which are Soviet and 1 German.

ASSOCIATION: Ordena trudovogo krasnogo znameni institut elektrosvarki im. Ye. O. Patona AN USSR (Order of the Red Banner of Labor Institute for Electro-Welding im. Ye. O. Paton, AS UkrSSR)

SUBMITTED: November 22, 1958

Card 2/2

LATASH, Yu.V.

PHASE I BOOK EXPLOITATION SOV/5411

Konferentsiya po fiziko-khimicheskim osnovam proizvodstva stali. 5th, Moscow, 1959.

Fiziko-khimicheskiye osnovy proizvodstva stali; trudy konferentsii (Physicochemical Bases of Steel Making; Transactions of the Fifth Conference on the Physicochemical Bases of Steelmaking) Moscow, Metallurgizdat, 1961. 512 p. Errata slip inserted. 3,700 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A. A. Baykova.

Responsible Ed.: A. M. Samarin, Corresponding Member, Academy of Sciences USSR; Ed. of Publishing House: Ya. D. Rozentsveyg. Tech. Ed.: V. V. Mikhaylova.

Card 1/16

Physicochemical Bases of (Cont.) SOV/5411

PURPOSE: This collection of articles is intended for engineers and technicians of metallurgical and machine-building plants, senior students of schools of higher education, staff members of design bureaus and planning institutes, and scientific research workers.

COVERAGE: The collection contains reports presented at the fifth annual convention devoted to the review of the physicochemical bases of the steelmaking process. These reports deal with problems of the mechanism and kinetics of reactions taking place in the molten metal in steelmaking furnaces. The following are also discussed: problems involved in the production of alloyed steel, the structure of the ingot, the mechanism of solidification, and the converter steelmaking process. The articles contain conclusions drawn from the results of experimental studies, and are accompanied by references of which most are Soviet.

Card 2/16

LATASH, Yu.V.

PHASE I BOOK EXPLOITATION SOV/4343

Soveshchaniye po teorii liteynykh protsessov, 3d

Usadochnyye protsessy v metallakh; trudy soveshchaniya (Shrinkage Processes in Metals, Transactions of the Third Conference on the Theory of Casting Processes) Moscow, AN SSSR, 1960. 281 p. Errata slip inserted. 3,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya. Komissiya po tekhnologii mashinostroyeniya.

Resp. Ed.: B.B. Gulyayev, Doctor of Technical Sciences, Professor; Ed. of Publishing House: V.S. Rzheznikov; Tech. Ed.: T.V. Polyakova.

PURPOSE: This collection of articles is intended for scientific workers, engineers, technicians of scientific research institutes and industrial plants, and for faculty members of schools of higher education.

COVERAGE: The collection contains technical papers presented at the Third Conference on the Theory of Casting Processes, organized by Liteynaya sektsiya Komissii po tekhnologii mashinostroyeniya Instituta mashinovedeniya AN SSSR (Casting Section of the Commission for Machine-Building Technology of the Institute of Science of Machines, Academy of Sciences USSR) and by Institut metallurgii imeni Baykova AN SSSR (Institute of Metallurgy imeni A.A. Baykov, Academy of Sciences USSR). The most serious defects in castings, ingots, and welds as a result of metal shrinkage are reviewed. Factors contributing to the formation of shrinkage cavities, porosity, cracks, fissures, distortion, and internal stresses are analyzed along with measures taken to prevent and remedy them. The hydrodynamics of molten metals and the process of solidification of metals are discussed. Also presented are resolutions adopted at the Conference with regard to the problem of shrinkage in metals. No personalities are mentioned. Most papers are accompanied by bibliographic references, the majority of which are Soviet.

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Shrinkage Processes (Cont.) SOV/4343

AVAILABLE: Library of Congress (TS230.S7)

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APPROVED FOR RELEASE: 06/20/2000 CIA-RDP86-00513R000928810001-2"

MEDOVAR, B.I., kand.tekhn.nauk; Prinimali uchastiye: LATASH, Yu.V., kand. tekhn.nauk; MAKSIMOVICH, V.I., inzh.; CHEKOTILO, L.V., inzh.; PUZRIN, L.G., inzh.

Improvement of the weldability of austenite steels and alloys as a result of remelting under electric slag. Svar. proizv. no.10:16-18 O '60. (MIRA 13:9)

1. Institut elektrosvarki im. Ye.O.Patona AN USSR.
(Heat-resistant alloys—Welding)

18.3200 1496, 1454, 1573

S/125/60/000/009/003/017
A161/A130

AUTHORS: Latash, Yu.V., Maksimovich, B.I., Medovar, B.I., Klyuyev, M.M., Topilin, V.V.

TITLE: Elimination of Non-Metallic Inclusions from Metal in the Electro-Slag Remelting Process

PERIODICAL: Avtomaticheskaya svarka, 1960, 13, No. 9, pp. 17-23

TEXT: As known from previous works, treatment with slag in the electro-slag remelting process reduces the sulfur content (Ref. 5, 6), and the quantity of sulfide inclusions drastically decreases (Ref. 3, 4). Experiments have been carried out by the Electric Welding Institute at the "Dneprospetsstal" Plant to investigate the effect of flux composition and properties in the electro-slag remelting of ball bearing steel grade ШХ15СГ (ShKh15SG). (The initial metal had been highly contaminated.) Three steel rods of 85 mm diameter each were joined into a bunch and melted as electrodes in a water-cooled copper ingot mold of 260 mm diameter. The composition of the three

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Elimination of Non-Metallic Inclusions from Metal in the Electro-Slag Remelting Process

different fluxes used is the following:

	CaF_2 %	CaO %	Al_2O_3 %
АНФ-1П (ANF-1P)	Bulk	5	-
АНФ-6 (ANF-6)	65	5	30
АН-29 (AN-29)	-	45	55

Eleven ingots of 310 to 320 kg were cast. Due to the difference in conductivity of the flux grades (lowest in AN-29) the melting rate was different (Table 2). It is emphasized that in the case of the watched ingot diameter (260 mm), the growing melting speed is accompanied by a change of grain growth direction, and the axial growth is gradually replaced by radial growth. The degree of purification from sulfides increased in the order ANF-1P, ANF-6, AN-29 flux, i.e., the highest purification was obtained with the AN-29 which has the highest CaO content. The better effect of ANF-6 than of

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Elimination of Non-Metallic Inclusions from Metal in the Electro-Slag Remelting Process

ANF-1P is explained by its better desulfurizing capacity due to Al_2O_3 lowering the melting point of flux and raising the slag pool temperature. The effect of ANF-1P and ANF-6 on the content of oxides, silicates and globular inclusions was equal, and of the AN-29 weaker (Fig. 2). Non-metallic inclusions rose to the surface in the process, and the top portion of the ingots was contaminated more than the bottom, particularly by globules in remelting with AN-29 flux. The following conclusions were made:
1. It has been proven on the example of ball bearing steel ShKh15SG that metal is purified from oxides, silicates and globules mainly due to the inclusions rising to the surface and the purification degree depends on the speed of the ingot formation, i.e., on the speed of the crystallization front motion, and the orientation of the crystal growth (axial or radial).
2. The desulfurization degree depends mainly on the desulfurizing capacity of the flux, and not on the speed of melting. 3. It can be stated that it

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Elimin of Non-Metallic Inclu ions from Metal in the Electro-Slag Remelting Process

is possible to obtain ball bearing steel of a particularly high purity from non-metallic inclusions by using the electro-slag remelting process. Such steel is suitable for special small bearings in the most critical applications. Engineer S.A. Leybenzon of "Dneprospetsstal" took part in experiments. There are 5 figures and 12 Soviet references.

ASSOCIATIONS: Ordena Trudovogo Krasnogo Znameni institut elektrosvarki im. Ye.O. Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye.O. Paton of the Academy of Sciences of the UkrSSR) - Yu.V. Latash, B.I. Maksimovich, B.D. Medovar; Ordena Lenina metallurgicheskiy zavod im. I.M. Tevosyana (Metallurgical Plant "Order of Lenin" im. I.M. Tevosyan) - M.M. Klyuyev and V.V. Topilin

SUBMITTED: April 20, 1960

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S/125/60/000/010/002/015
A161/A133

AUTHORS: [illegible]var, B.I., Maksimovich, B.I., Latash, Yu.V., Topilin, V.V., Klyu[illegible], M.M., Shiryayev, N.A.

TITLE: The Effe[illegible] o[illegible] El[illegible]tro-Sla[illegible] the Quality of Stainless [illegible]X18H9 (OK[illegible] and 1X[illegible] (4N19V3B)(ЭИ851 (EI851)) Steel

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 10, pp. 11-18

ABSTRACT: The article contains information on experiments with electro-slag remelting process. The material used were bars of 0X18H9 (OKh18N9) steel 100 mm in diameter, and ЭИ851 (EI851) steel 85 mm in diameter joined into bundles of three and melted in an ingot mold of 250 mm diameter. Five 300 kg ingots were cast. Two ingots were reforged into a 25x175x515 mm billet, and two into a 95 mm diameter bar; one was investigated as cast. The results of metallographic investigation are presented. There were no streaks, nor nonmetallic inclusion accumulations, and the absolute content of slag inclusions was considerably lower than in the initial metal, which was also confirmed by

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The Effect of Electro Slag Remelting on the Quality of Stainless 0Х18Н9 (OKh18N9) and 1Х14Н19В3Б (1Kh14N19V3B) (ЭИ851 (EI851)) Steel

electro-chemical solving. The total gas content was twice lower than in the initial metal; the nitrogen and oxygen contents were reduced more than the hydrogen content. Apparently, oxygen is being eliminated in the process with floating oxide inclusions, and nitrogen and hydrogen can separate with bubbles forming on the surface of the growing metal grains. Nitrogen separates from metal easily when the metal contains no components forming stable nitrides (titanium, niobium). Nitrides having a higher melting point and larger volume do not coagulate and stick more easily in interaxial spaces. This explains the different quantity of nitrogen eliminated from the two steel grades. The following conclusions are made: 1) The electro-slag process considerably reduces the gas content and nonmetallic inclusions in both steel grades. 2) It raises the ductility of austenitic stainless steel grade and considerably reduces the anisotropy of mechanical properties. 3) The ductility of the remelted metal at hot deformation temperature is 30-40% higher than that of the initial one. There are 8 figures, 5 tables and 5 Soviet-bloc references.

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The Effect of Electro-Slag Remelting on the Quality of Stainless 0Х18Н9 (OKh18N9) and 1Х14Н19В3Б (1Kh14N19V3B) (ЭИ851 (EI851)) Steel

ASSOCIATIONS: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im.Ye. O.Patona AN USSR ("Order of the Red Banner of Labor" Electric Welding Institute im.Ye.O.Paton of the UkrSSR Academy of Sciences) (B.I. Medovar, B.I. Maksimovich and Yu.V. Latash); Ordena Lenina elektrometallurgicheskiy zavod "Elektrostal'" im. I.F.Tevosyana ("Order of Lenin" Electro-Metallurgical "Elektrostal'" Plant im.I.F.Tevosyan) (V.V. Topilin, M.M. Klyuyev and N.A. Shiryayev)

SUBMITTED: May 5, 1960

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S/125/60/000/012/008/014
A161/A030

AUTHORS: Medovar, B.I.; Latash, Yu.V.; Maksimovich, B.I.; Stupak, L.M.

TITLE: Electro-Slag Remelting of Steel Alloyed with Readily Oxidizing Elements

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 12, pp. 60 - 65

TEXT: Experiments have been carried out to determine the proper technique for electro-slag remelting of steel containing easily oxidizing components, for the АНФ -6 (ANF-6) flux (of CaF_2-Al_2O_3 system) does not ensure full absorption of some elements. 50% oxidation of titanium in remelting 1Х18Н9Т (1Kh18N9T) steel with this flux is an example. This steel was chosen for the experiments. A water cooled copper mold of 250 mm height and 50 mm inner diameter was used; the 3 mm welding wire was of the same steel. A series of calcium fluoride base fluxes was tested. Process details: melting with alternating current; wire feed 156 m/hr; transformer idle voltage 50 - 54 volt for flux with low conductivity in molten state (the "АН -8" (AN-8) tried for comparison, and fluoride base fluxes with high Al_2O_3 content), and 36 - 38 volts for high-conductive fluxes (pure CaF_2, concentrated fluorite, and their mixtures with SiO_2 and TiO_2); melting current 42-46 volts and 300 - 330 amps for low-conductive flux, and 28 - 32 volts and 360

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Electro-Slag Remelting of Steel Alloyed with Readily Oxidizing Elements

amps for high-conductive. Argon was fed to the bath surface through a special hood (Fig. 1). Ingots were shaved to templates of 20 mm thickness, and the titanium content determined by spectrum analysis. Apparantly, the reason for high titanium oxidation in process with the ANF-6 flux is the content of 2 - 3% SiO_2 in it, originating from the fluorine concentrate and Γ-4 (G-4) alumina used in the making. The burning of titanium dropped when the fluorine concentrate was replaced with pure CaF_2 (Fig. 3), and it dropped more when G - 4 was replaced with pure aluminum oxide. But appearantly Al_2O_3 is not absolutely neutral in the electro-slag process when its content is high, for some reducing of aluminum from such slag had been revealed (Ref. 8) in slag treatment, and it is observed also in electro-slag welding of titanium steel with the ANF-6 flux. The sources of oxygen are the ambient air: higher iron oxides (Refs. 10, 11); Ti oxides in the slag, for titanium can form TiO, Ti_2O_3 and TiO_2 (Ref. 12); scale or rust on the melting electrode, or its oxidation in close vicinity with the bath surface where it is heated to over 800 - 900°C. Argon shielding is an effective means against oxidation of titanium or other oxidizing metals in the process. It is obvious that fluxes containing no unstable oxides must be used and the bath must be shielded from air. As had been stated in (Ref. 14) (B.I. Medovar and B.I. Maksimovich,

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Electro-Slag Remelting of Steel Alloyed with Readily Oxidizing Elements

"Avtomaticheskaya svarka", No. 4, 1960) pure flux for electro-slag remelting of alloys with readily oxidizing components can be obtained by keeping molten flux for a considerable length of time (in the making process) in an arc furnace with graphite electrodes and graphite bottom. The flux is purified from silica and iron oxides through deoxidation by carbon and through the formation of volatile silicon fluorides. The АНФ-1 (ANF-1) flux (fluoride concentrate) refined in this way is near to pure calcium fluoride by the content of unstable oxides and has been given the designation "АНФ-1П" (ANF-1P). The developed processing technique was tested at the "Dneprospetsstal'" works (Engineer S.A. Leybenzon of "Dneprospetsstal'" took part); 300 - 350 kg ingots of 1Kh18N9T steel were melted using pure calcium fluoride and the ANF-1P flux. Apart from this, not fresh but used ANF-1P flux was tried. Argon was used for shielding all the time; the electrodes were carefully cleaned of scale by pickling. The oxidation of titanium was insignificant in all three process variations, but it was slightly higher in the bottom ingot portions after remelting with fresh ANF-1P flux than with pure calcium fluoride. The minimum Ti oxidation was obtained, as expected, with reused ANF-1P. Titanium oxidation was practically absent. There are 3 figures and 14 references of which 13 are Soviet and 1 English.

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Electro-Slag Remelting of Steel Alloyed with Readily Oxidizing Elements

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O. Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" imeni Ye.O. Paton of the AS UkrSSR)

SUBMITTED: April, 6 1960

Figure 1:

1 - electrode;
2 - slag;
3 - metal

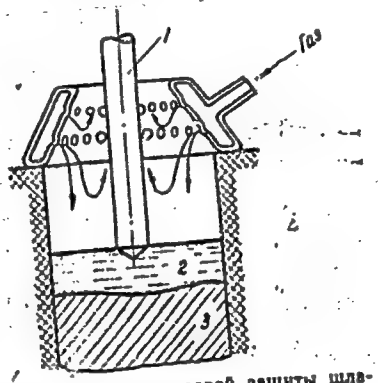

Рис. 1. Схема газовой защиты шлаковой ванны:
1 — электрод; 2 — шлак; 3 — металл.

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LATASH, YU.V.

5

S/125/61/000/001/008/016
A161/A133

AUTHORS: Vorob'yev, Yu.K., Doronin, V.M., Klyuyev, M.M., Topilin, V.V., Shiryayev, N.A., Voynovskiy, Ye.V., Medovar, B.I., Latash, Yu.V., Maksimovich, B.I.

TITLE: The effect of electro-slag remelting on th quality of chrome-nickel molybdenum ЭИ 847 (EI847) steel

PERIODICAL: Avtomaticheskaya svarka, no. 1, 1961, 52-56

TEXT: The authors present the results of experiments carried out with arc furnace, vacuum furnace, and electro-slag processes. The chemical composition of the EI847 grade steel is (%): 0.10-0.15 C, 14-17 Cr, 14-16 Ni, 2.5-3.5 Mo, 0.45-0.85 Nb, not over 0.8 Si, 0.8 Mn, 0.02 S and 0.03 P. It is austenitic, is used mainly for seamless pierced and rolled tubes, and the ductility at high temperature is of primary importance. The austenitic structure of this steel is not subjected to $\gamma \rightarrow \alpha$ transformation at high cold deformation or any heat treatment. The surplus component is carboni-

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S/125/61/000/001/008/016
A161/A133

The effect of electro-slag remelting ...

tride. Cubic $Cr_{23}C_6$ carbide and the intermetallic $MoFe_2$ phase were revealed along with Nb carbonitride by X-ray analysis after long aging at 600-700°C. Aging for 500-7,000 hours at 550-700° does not cause any tendency to intercrystalline corrosion when EI847 steel is preliminarily hardened. The 100-hour strength limit for hardened EI847 steel is 25 kg/mm² at 650°, and 30 kg/mm² at 600°. In the tests electro-slag remelting was carried out in a P-909 (P909) unit, in a 250 mm diameter crystallizer; the consumable electrodes were forged rods 140 mm in diameter, cleaned with emery wheel. No defects of any kind were found in ingots prepared by electro-slag remelting (Fig.2). Ingots produced by arc remelting in the vacuum were nearly as sound. The presence of globular inclusions is apparently due to the high contamination of the initial metal before remelting. The steel produced by electro-slag and vacuum remelting had a higher ductility than steel melted by any arc furnace process (Fig.4); electro-slag remelted steel was less subject to overheating (its ductility remained at same level up to 1,300°C. Conclusions: 1) Purest (from nonmetallic inclusions) EI847 steel melted in arc furnaces was obtained in the process with a fresh charge with rimming and slag deoxidation by aluminum powder, and by employing Ni-Nb alloys, or ferroniobium with a low Si content. This process ensures the best ductility of the steel

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A161/A133

The effect of electro-slag remelting ...

at high and ordinary temperatures. 2) If very high purity is required the EI847 steel must be melted using either the electro-slag or vacuum arc remelting with consumable electrodes. Both these methods result also in the highest technological ductility. 3) Ingots produced with the electro-slag process differ from ordinary ingots by a more dense structure, absence of pipes, loose center structure, segregation and other defects. 4) The ultimate strength of EI847 steel slightly decreases after electro-slag remelting, and the yield limit increases. The higher yield limit is due to a decreased dendritic heterogeneity owing to the particular crystallization conditions in water-cooled copper ingot molds. There are 4 figures.

ASSOCIATION: Ordena Lenina zavod "Elektrostal'" im.I.F.Tevosyana (Order of Lenin "Elektrostal" Plant im.I.F.Tevosyan) - Yu.K. Vorob'yev, V.M. Doronin, M.M. Klyuyev, V.V. Topilin, N.A. Shiryayev, Ye. V. Voynovskiy; Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im.Ye.O.Patona ("Order of the Red Banner of Labor" Electric Welding Institute im.Ye.O.Paton AS UkrSSR) - B.I. Medovar, Yu.V. Latash and B.I. Maksimovich

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S/125/61/000/011/007/012
D040/D113

AUTHORS: Medovar, B. I., Latash, Yu. V., and Stupak, L. M.

TITLE: The possible oxygen sources and methods of oxidation protection for metal in electro-slag remelting

PERIODICAL: Avtomaticheskaya svarka, no. 11, 1961, 47-52

TEXT: Three reasons for oxygen entering the metal in the electro-slag remelting process are pointed out and discussed: unstable oxides which may be present in the CaF_2-system fluxes used for the process can cause oxidation of some elements; scale or rust on the consumable electrode may introduce a large quantity of oxygen, which is illustrated by examples of very high porosity in remelted armco steel; oxygen from ambient air above the slag can get into the metal under the slag in two ways - through oxidation of the electrode surface and directly through the slag layer by the formation of high oxides of iron, titanium, manganese and other elements, and subsequent transformation of high oxides into low on the slag-metal interface. Argon protection proved effective in experiments at the Institut elektrosvarki (Electric Welding Institute) and the zavod "Dneprospetsstal'" ("Dneprospets-

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The possible oxygen ...

stal'" Plant) and eliminated "catastrophic oxidation" of the 79 HM(79NM) Ni-Mo alloy used in electrical engineering. It is stressed that scale may form on the entire electrode surface and not only close to the slag bath. A special paste of sodium aluminate with 20% calcium fluoride spread on electrodes prevents scale. Other protective coatings may also be used, e.g. graphite or varnish are good for copper and copper alloys as well as for steel with high carbon content. The following protective measures should be taken: (1) Use of fluxes free of oxides which could be reduced by elements in the steel being remelted; (2) obligatory cleaning or pickling of the surface of the consumable electrode; (3) if the steel to be remelted has a low oxidation resistance at high temperature, the entire electrode surface must be protected by a coating, or remelting must be conducted in a chamber filled with neutral gas and encompassing the entire electrode; (4) oxidation of an electrode heated by electric current is to be prevented by using the shortest throat possible, i.e. the current carrier is to be moved closer to the melting space; (5) protection of the slag bath by blowing argon or other neutral gas into the crystallizer. There are 6 figures and 5 Soviet references.

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S/125/61/000/011/007/012
D040/D113

The possible oxygen ...

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye. O. Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye. O. Paton of the AS UkrSSR)

SUBMITTED: March 25, 1961

Card 3/3

S/125/62/000/001/008/011
D036/D113

AUTHOR: Latash, Yu.V.

TITLE: Evaporation cooled ingot mold for the electroslag remelting of metal

PERIODICAL: Avtomaticheskaya svarka, no. 1, 1962, 87-88

TEXT: The author describes a new type of ingot mold for the electroslag remelting of metals, using evaporation cooling (see Figure). Steam bubbles, continuously formed on the outer surface of the inner wall in the thin boundary layer of water, leave the wall and either float to the exposed surface of the water or are condensed beforehand. As much more heat is absorbed during steam-formation than during the heating of water, the mold requires very much less water than conventional double-walled copper molds with an enclosed water jacket or spray-cooled molds. The temperature of the inner wall is thus maintained at about 100°C. A mold of this new design was made and tested. Its internal diameter was 140 mm, its height 500 mm and the thickness of its walls 6 mm. To prevent the inner wall from melting and becoming fused to the ingot, low-carbon steel, whose melting point is higher than copper, was used. As a result of the tests, the mold was found applicable

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D036/D113

Evaporation cooled ...

for the electroslag remelting of the most various types of steel and alloy. Its advantages are: low water consumption, replacement of scarce copper by steel for its construction, simplicity of manufacture and repair, and even cooling of the walls. It may therefore be successfully applied also in installations for the arc-remelting of metal, continuous and semi-continuous steel-casting and non-ferrous-metal-casting installations, and as chill molds in arc flux-melting furnaces. There is 1 figure.

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37665
S/125/62/000/004/002/013
D040/D113

1.2300

AUTHORS: Medovar, B.I., Latash, Yu.V., Stupak, L.M., and Maksimovich, B.I.

TITLE: Dephosphorizing the metal during electroslag remelting

PERIODICAL: Avtomaticheskaya svarka, no. 4, 1962, 6-7

TEXT: The dephosphorizing effect of different slag systems is briefly discussed from the ionic theory viewpoint, and slag systems are recommended for electroslag remelting of carbon steel and alloy steels. The high affinity of BaO with P_2O_5, its advantages compared to CaO, and the disadvantages of SiO_2 and Al_2O_3 are indicated. Fluxes of CaF_2-CaO-FeO, CaF_2-BaO-Fe_3O_4 and CaF_2-BaO-Mn_2O_3 systems are recommended for remelting carbon steel, and non-oxidizing CaF_2-BaO systems for alloy steels. It is recommended (1) to keep the slag bath temperature low when dephosphorizing, (2) not to use CaF_2,

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Dephosphorizing the metal ...

CaF_2-Al_2O_3 and CaF_2-CaO slags, and (3) to cast ingots with a subnormal height:diameter ratio if the phosphorus content has to be reduced, since, using present remelting techniques, the slag cannot be skimmed and renewed. The АНФ-20 (ANF-20) flux (CaF_2-BaO system) can be used for dephosphorizing steel containing Ti, Al and other elements with a high affinity with oxygen. In remelting 1Х18Н9Т (1Kh18N9T) steel with an ANF-20 flux, 85-90% Ti is assimilated by the metal bath. The phosphorus content in Г 13 (G13) carbon steel could be reduced from 0.068 to 0.05%, from 0.077 to 0.065%, and from 0.077 to 0.063% by three different fluxes.

ASSOCIATION: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki im. Ye.O.Patona AN USSR (Electric Welding Institute "Order of the Red Banner of Labor" im. Ye.O.Paton, AS UkrSSR).

SUBMITTED: December 30, 1961

Card 2/2

LATASH, Yu.V.

Crystallization pan for the electric slag refining of metal with evaporation cooling. Avtom. svar. 15 no.1:87-88 Ja '62. (MIRA 14:12)

(Metallurgy)
(Crystallization)

OSTROVSKIY, S.A., kand. tekhn. nauk; RABKIN, D.M., kand. tekhn. nauk; MAKARA, A.M., kand. tekhn. nauk; SHEVERNITSKIY, V.V., kand. tekhn. nauk; ASNIS, A.Ye., kand. tekhn.nauk; POKHODNE, I.K., kand.tekhn. nauk; PODGAYETSKIY, V.V., kand.tekhn.nauk; PATON,B.Ye., laureat Leninskoy premii, akademik, doktor tekhn. nauk; BEL'FER,M.G., inzh.; MANDEL'BERG,S.L., kand.tekhn.nauk; MEDOVAR,B.I., doktor tekhn.nauk; GUREVICH,S.M., kand.tekhn.nauk; LATASH,Yu.V., kand.tekhn.nauk; KIRDO, I.V., kand.tekhn.nauk; SOROKA,M.S., red.; GORNOSTAYPOL'SKAYA, M.S., tekhn.red.

[Technology of electric fusion welding]Tekhnologiia elektricheskoi svarki plavleniem. Moskva, Mashgiz, 1962. 663 p. (MIRA 15:12)

1. Nauchnyye sotrudniki Instituta elektrosvarki imeni Ye.O.Patona (for all except Soroka, Gornostaypol'skaya).
(Electric welding)

PATON, B.Ye., akademik; MEDOVAR, B.I., doktor tekhn.nauk; LATASH, Yu.V., kand.tekhn.nauk; MAKSIMOVICH, B.I., inzh.; STUPAK, L.M., inzh.

Achievements and further prospects for electric slag refining. Stal' 22 no.11:1001-1005 N '62. (MIRA 15:11)

1. Institut elektrosvarki im. Ye.O.Patona AN UkrSSR.
(Zone melting) (Electrometallurgy)

PATON, B.Ye., akademik; MEDOVAR, B.I., doktor tekhn.nauk; LATASH, Yu.V., kand.tekhn.nauk

Present state and prospects for the further development of electric slag refining in the Ukraine. Met.i gornorud.prom. no.5:12-19 S-O '62. (MIRA 16:1)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni Ye.O.Patona AN UkrSSR. 2. Akademiya nauk SSSR (for Paton).

(Zone melting) (Ukraine—Steel—Metallurgy)

MEDOVAR, Boris Izrailevich, doktor tekhn.nauk; LATASH, Yuriy Vladimovich, kand. tekhn. nauk; IVANOV, S.M., red.; RAKITIN, I.T., tekhn. red.

[The rebirth of steel] Stal' rozhdaetsia vnov'. Moskva, Izd-vo "Znanie," 1963. 39 p. (Novoe v zhizni, nauke, tekhnike. IV Seriia: Tekhnika, no.16) (MIRA 16:9)
(Steel--Electrometallurgy) (Zone melting)

PHASE I BOOK EXPLOITATION SOV/6431

Medovar, Boris Izrailevich, Yuriy Vadimovich Latash, Boleslav Ivanovich Maksimovich, and Leonid Mikhaylovich Stupak

Elektroshlakovyy pereplav (Electroslag Melting) Moscow, Metallurgizdat, 1963. 169 p. Errata slip inserted. 2250 copies printed.

Ed. (Title page): B.Ye. Paton, Academician, Academy of Sciences USSR, Lenin Prize Winner; Ed. of Publishing House: G.L. Pozdnyakova; Tech. Ed.: V.V.Mikhaylova.

PURPOSE: This book is intended for metallurgists working in the production of high-quality steels and alloys. It may also be useful to students at metallurgical schools of higher education, consumers of high-quality metal, and workers in various branches of metallurgy, machine building, shipbuilding, boiler making, and instrument making.

Card 1/6

Electroslag Melting (Cont.) SOV/6431

COVERAGE: The book describes the electroslag melting of steel and alloys, a new method of producing high-quality metals. Results of scientific research work related to the electroslag melting method are summarized. Numerous data on the quality of metal produced by this method are presented, and prospects for the further development of electroslag melting are discussed. The authors thank S.A.Laybenzon, A.F.Tregubenko, M.M.Klyuyev, V.V. Topilin, V.S.Kultygin, Yu.A.Shulte, Professor and Doctor of Technical Sciences, G.A.Koval', and others for their assistance. They particularly thank B.Ye.Paton, Member of Academy of Sciences, Ukrainian SSR. There are 92 references, primarily Soviet.

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ACCESSION NR: AT4016062 S/2698/63/000/000/0141/0146

AUTHOR: Paton, B. Ye.; Medovar, B. I.; Latash, Yu. V.

TITLE: Electroslag casting and its future use in the foundry industry

SOURCE: Soveshchaniye po teorii liteynykh protsessov. 8th, 1962. Mekhanicheskiye svoystva litogo metalla (Mechanical properties of cast metal). Trudy* soveshchaniya. Moscow, Izd-vo AN SSSR, 1963, beginning with "Protsess EShP..." on page 145 through page 146

TOPIC TAGS: casting, foundry technology, electroslag casting, electrode, electrode melting, aluminum, aluminum alloy

ABSTRACT: Following an extensive study of the techniques and uses of electroslag remelting (the remelting of used electrodes in cooled crystallizers), a process which may be used for the manufacture of high-quality, alloy steel castings of simple shape, the authors point out that electroslag casting can be used to produce sleeves, journals, liners and other parts characterized by high density, homogeneity of the macro- and microstructure, high purity, and stable mechanical properties. By employing used electrodes of varying length or by varying the number of electrodes melted, castings may be made of varying height or

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ACCESSION NR: AT4016062

shape. The electroslag castings have about the same properties as well stressed common metal. By melting electrodes made of different metals in one bunch, it is possible to obtain alloy castings of the required composition. For example, by melting an electrode consisting of iron and aluminum bars, the Institut electrosvarki (Institute of Electric Welding) obtained castings of Yu12 and Yu16 alloys. The aluminum in these castings was distributed moreevenly than in the usual ones. Orig. art. has: 6 figures and 5 tables.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 27Dec63 ENCL: 00

SUB CODE: MM NO REF SOV: 000 OTHER: 000

Card 2/2

SMOLYAKOV, V.F.; SHUL'TE, Yu.A.; MEDOVAR, B.I.; GAREVSKIKH, I.A.; LATASH, Yu.V.; TSIVIRKO, E.I.; ZABAIUYEV, Yu.I.; TOPCHIY, S.F.

Nonmetallic inclusions in electric slag refined 12Kh2N4A structural steel. Met. i gornorud. prom. no.4:35-37 Jl-Ag '64. (MIRA 18:7)

FAYBISOVICH, L.I.; VARAKIN, P.I.; LARICHKIN, M.S.; MEDOVAR, B.I.; LATASH, Yu.V.; MAKSIMOV, I.P.; TYURIN, V.I.; BUSHMELEV, V.M.

Effect of electric slag remelting on the quality of rotor open-hearth steel. Met. i gornorud. prom. no.5:18-21 S-O '64. (MIRA 18:7)

LATASH, Yu. V.

12

ACCESSION NR: AP4041869 S/0133/64/000/007/0640/0642

AUTHOR: Gabuyev, G. Kh.; Yel'tsov, K. S.; Shul'te, Yu. A.; Mikhaylov, P. A.; Garevskikh, I. A.; Leybenzon, S. A.; Tsivirko, E. I.; Medovar, B. I.; Latash, Yu. V.; Frantsov, V. P.; Pakhomov, A. I.; Kaganovskiy, G. P.; Voinov, S. G.; Shalimov, A. G.; Kalinnikov, Ye. S.; Smolyakov, V. P.; Kosoy, L. F.

TITLE: Improvement of the quality of electroslag-melted ball-bearing steel

SOURCE: Stal', no. 7, 1964, 640-642

TOPIC TAGS: ball bearing steel, electroslag melted steel, high purity steel, steel electroslag melting

ABSTRACT: Several variants of electroslag melting have been tested in an attempt to improve the quality of ball-bearing steel. The analysis of electroslag-melted steel showed that nitrides and carbonitrides constitute the greatest part (up to 75%) of the nonmetallic inclusions present in the steel. These nitrides derive from the initial material. The electroslag process eliminates large nitrides over 20μ in diameter, but does not eliminate the smaller ones.

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ACCESSION NR: AP4041869

Therefore, the nitrogen and titanium contents of the initial metal must be reduced to a minimum. This can be done, for example, by refining the metal in the ladle with synthetic slag. Electroslag melting of open-hearth steel refined with synthetic slag eliminated all the inclusions larger than 10μ and reduced the number of smaller inclusions by more than 50% and the nitrogen and oxygen contents to 0.0053 and 0.0020%, respectively. To produce ultra-high purity ball-bearing steel, the double electroslag melting was applied with a combination of various fluxes. The use of ANF-6-ANF-6 fluxes in double electroslag melting or of AN-29-ANF-6 fluxes produced best results. Ultra-high purity steel, fully satisfying requirements for critical ball bearings, was obtained. Orig. art. has: 2 figures.

ASSOCIATION: Dneprospetsstal' (Dneprospetsstal' plant); Zaporozhskiy mashinostroitel'nyy institut (Zaporozh Machine-Building Institute); Institut elektrosvarki im Ye. O. Patona (Electric Welding Institute); TsNIICHM

Card 2/3

L 50194-65 EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) Pf-4 JD/HM

AM5016217 BOOK EXPLOITATION UR

Medovar, B. I. and Yu. V. Latash

Electroslag melting (Elektroshlakovyy pereplav). Kiev, Izd-vo Naukova dumka 1965. 78 p. illus., tables. 2300 copies printed. (At head of title: Akademiya nauk Ukrainskoy SSR. Ordena trudovogo krasnogo znameni institut elektrosvarki)

TOPIC TAGS: electroslag melting, electroslag welding, electroslag melted steel, electroslag melted alloy

PURPOSE AND COVERAGE: This booklet is intended for engineering personnel, metallurgists, welders, machine-builders, metal specialists, and designers. It may also be useful to students of schools of education. The booklet describes the new method of electroslag melting of special high-quality steels and alloys. Data on the quality of electroslag-melted metals and their efficient utilization in various branches of modern engineering are presented.

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AM5016217

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Specific Metallurgical Features of Electroslag Melting — 22

Quality of Electroslag-Melted Alloyed Steels and Alloys — 37

Uses for Electroslag Melted Metal — 44

Use of Electroslag-Melted Metal in the Welding Industry — 61

Prospects of Development of the Electroslag Melting Process — 76

SUB CODE: MM SUBMITTED: 13Feb65 NO REF SOV: 000

OTHER: 000

Card 2/2

3

L 63975-65 EWT(m)/EWP(z)/EWP(b)/EWA(d)/EWP(t) MJW/JD

ACCESSION NR: AP5014242 UR/0383/65/000/002/0024/0026 48 47

669.187.6

AUTHOR: Zabaluyev, Yu. I.; Smolyakov, V. F.; Vul'fovich, M. S.; Kaganovskiy, G. P.; Stetsenko, N. A.; Yemel'yanenko, Yu. G.; Madovar, B. I. (Doctor of technical sciences); Latash, Yu. V. (Candidate of technical sciences)

TITLE: Improving the macrostructure of electroslag steels

SOURCE: Metallurgicheskaya i gornorudnaya promyshlennost', no. 2, 1965, 24-26

TOPIC TAGS: electroslag melting, steel

ABSTRACT: Crystallization bands (layers)--regions which are more resistant to etching than the base metal--are observed in the macrostructure of ball bearing and structural steels melted by the electroslag method using ANF-6 flux. In the ingot, these layers reproduce the contour of the bottom of the metal bath, and in rolled products they appear as rings. These crystallization layers are caused by sharp changes in the rate at which the crystallization front advances due to disturbance of the thermal balance between the metal and slag baths. The authors studied the effect of substituting AN-291 flux for ANF-6. 12Kh2N4A, 18Kh2N4A, 5hKh15, 5hKh15SG

Card 1/2

L 63975-65

ACCESSION NR: AP5014242

and 30KhGSNA steels were melted. The working current was reduced by 15-20% and rate of flux consumption was increased by 15-25% over that of ANF-6. The macrostructure of forged and rolled specimens (circular and square, 100-150 mm) was dense and uniform without traces of layered crystallization. Contamination by nonmetallic inclusions is about the same with both fluxes. The elimination of the crystallization layers when AN-291 flux is used is due to the higher electrical resistance of this flux which makes hotter smelting possible, increasing the heat content (enthalpy) and consequently the thermal inertia of the melting zone. This effect acts as a "choke" which smooths out fluctuations in electrical conditions and results in a more uniform ingot. Orig. art. has: 2 figures, 3 tables.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 002 OTHER: 000

IVC

Card 2/2

L 35031-65 EWT(m)/EWP(b)/EWP(t) JD

ACCESSION NR: AP5008155 S/0286/65/000/005/0034/0034 35 34 B

AUTHOR: Paton, B. Ye.; Dudko, D. A.; Medovar, B. I.; Latash, Yu. V.; Maksimovich, B. I.; Shevchenko, A. I.; Stupak, L. M.; Goncharenko, V. P.; Grigor'yev, L. F.; Petukhov, G. K.; Chudin, N. I.; Lubenets, I. A.; Yartsev, M. A.; Keys, N. V., Tulin, N. A.; Kapel'nitskiy, V. G.; Privalov, N. T.; Pis'mennov, V. S.; Kholodov, Yu. A.; Bystrov, S. K.; Bastrakov, N. P.; Donets, I. D.; Silayev, A. Ya.

TITLE: Method of electroslag casting of ingots. Class 18, No. 168743

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 34

TOPIC TAGS: ingot casting, ingot electroslag casting, electroslag melting, steel melting, alloy melting, metal melting

ABSTRACT: This Author Certificate introduces a method of electroslag casting of ingots in an open or protective atmosphere or in vacuum, in which slag is first melted in a mold with a nonconsumable or consumable electrode arc or plasma jet. To improve the metal quality and the ingot surface and to raise the yield, the

melted in a mold with a nonconsumable or consumable electrode arc or plasma jet. To improve the metal quality and the ingot surface and to raise the yield, the molten metal or, if needed, the slag is poured into the mold through a hollow consumable or nonconsumable electrode (see Fig. 1 of the Enclosure). Orig. art. has: 1 figure. [ND]

Card 1/1

L 35031-65

ACCESSION NR: AP5008155

ASSOCIATION: Chelyabinskiy metallurgicheskiy zavod (Chelyabinsk Metallurgical Plant)

SUBMITTED: 06Feb63 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 000 OTHER: 000 ATD PRESS: 3215

Card 2/3

L 3502-66 EWT(m)/EPF(c)/EWP(t)/EWP(b) IJP(c) JD

ACCESSION NR: AP5023080 UR/0125/65/000/009/0025/0029 27

621.791.756:669.0

21 B

AUTHOR: Latash, Yu. V. (Candidate of technical sciences) 44,55

TITLE: Metallurgical processes involved in the electroslag remelting of steel 44,55 14

SOURCE: Avtomaticheskaya svarka, no. 9, 1965, 25-29

TOPIC TAGS: electroslag melting, synthetic slag, calcium compound 16

ABSTRACT: These processes were investigated for armco steel since, owing to its low content of C, Si, and Mn, and its lack of other alloy elements, this type of steel is highly suitable for investigating the effect of flux (slag) composition and its change in the process of electroslag remelting, as well as the dependence of the composition of the remelted metal on the atmosphere above the slag bath. Descaled 52x52 mm rods of killed armco steel (0.025% C, 0.20% Si, 0.22% Mn, 0.021% S, 0.010% P), originating from a single open-hearth furnace melt, were remelted in a 100-mm diameter ingot mold by the electroslag method on using fluxes of different types: ANF-6 (CaF_2-Al_2O_3 system), AN-29 (Al_2O_3-CaO-CaF_2; CaO:Al_2O_3 ratio ≈ 1:1) and an experimental flux of the CaO-Al_2O_3-CaF_2 system with a high

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L 3502-66
ACCESSION NR: AP5023080

CaO:Al_2O_3 ratio (flux OP-1). The ingots obtained by electroslag melting were 620-650 mm high, and samples for chemical analysis and determination of oxygen content were cut out of these ingots at distances of 50, 150, 300, 450, and 600 mm from the bottom. It was established that a satisfactory remelting of the steel requires a slag containing only oxides that are thermodynamically more stable than the oxides of the corresponding alloy elements in the remelted steel. To this end, the components of slag must not form chemical compounds with the oxides of the alloy elements in the metal. This is particularly important when the remelting is performed with access of air to the slag bath. Hence, despite their high desulfurizing effect, fluxes containing a large proportion of free CaO should not be indiscriminately employed in the electroslag remelting of steels alloyed with Al and Ti, since this may involve the risk of the formation of calcium aluminates and titanates in the slag. Orig. art. has: 3 figures, 2 tables.

ASSOCIATION: Institut elektrosvarki im. Ye. O. Patona AN UkrSSR (Electric Welding Institute, AN UkrSSR)

SUBMITTED: 22Oct64 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 004 OTHER: 001

Card 2/2

GABUYEV, G.Kh.; YEL'TSOV, K.S.; SHUL'TE, Yu.A.; MIKHAYLOV, P.A.; GAREVSKIKH, I.A.; LEYBENZON, S.A.; TSIVIRKO, E.I.; MEDOVAR, B.I.; LATASH, Yu.V.; FRANTSOV, V.P.; PAKHOMOV, A.I.; KAGANOVSKIY, G.P.; VOINOV, S.G.; SHALIMOV, A.G.; KALINNIKOV, Ye.S.; SMOLYAKOV, V.P.; KOSOY, L.F.

Improving the quality of electric-slag-refined bearing steel. Stal' 24 no.7:640-642 Jl '64. (MIRA 18:1)

1. Zavod "Dneprospetsstal'", Zaporozhskiy mashinostroitel'nyy institut, Institut elektrosvarki im. Ye.O.Patona i TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii imeni I.P.Bardina.

L 35339-66 EWT(m)/EWP(w)/T/EWP(t)/ETI/EWP(k) IJP(c) JD

ACC NR: AP6011826 (N) SOURCE CODE: UR/0383/66/000/002/0035/0039

AUTHOR: Faybisovich, L. I.; Varakin, N. I.; Larichkin, M. S.; Medovar, B. I.; Latash, Yu. V.; Yemel'yanenko, Yu. G.; Maksimov, I. P.; Koval', S. I.; Akulinin, M. A.

ORG: none

TITLE: Quality of heavy forgings of 36KhN1MFAR electroslag rotor steel

SOURCE: Metallurgicheskaya i gornorudnaya promyshlennost', no. 2, 1966, 35-39

TOPIC TAGS: steel forging, steel, nonmetallic inclusion, brittleness, temper brittleness

ABSTRACT: The study deals with the effect of electroslag melting on the quality of vacuum-degassed and nondegassed open-hearth steel. Forgings of 36KhN1MFAR steel, obtained from electroslag ingots weighing 13 tons, have a compact structure and a homogeneous chemical composition. The content of sulfur, gas, and nonmetallic inclusions in them is considerably lower than in similar forgings from metal made the conventional way. The mechanical properties of the remelt metal are characterized by high stable values in the length and cross section of the forging both in longitudinal and diametrical directions. Electroslag melted 36KhN1MFAR steel does not possess a tendency to temper brittleness. Its nul ductility transition temperature is below -70C. Orig. art. has: 5 figures and 4 tables. [NT]

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 003

Card 1/1 UDC: 669-13:658.562

ACC NR: AP6032554 SOURCE CODE: UR/0125/66/000/009/0032/0034

AUTHOR: Nikitin, B. M.; Koval', A. Ye., Zabaluyev, Yu. I.; Kaganovskiy, G. P.; Moshkevich, Ye. I.; Medovar, B. I.; Latash, Yu. V.

ORG: [Nikitin, Koval'] UKRNIISPETsSTAL'; [Zabaluyev, Kaganovskiy, Moshkevich] Dneprospetsstal' Plant (Zavod "Dneprospetsstal'"); [Medovar, Latash] Electric Welding Institute im. Ye. O. Paton AN USSR (Institut elektrosvarki AN USSR)

TITLE: The behavior of aluminum during electroslag melting of silicon steel

SOURCE: Avtomaticheskaya svarka, no. 9, 1966, 32-34

TOPIC TAGS: aluminum, electroslag melting, silicon steel, mechanical property

ABSTRACT: The authors study the behavior of aluminum during electroslag melting of silicon steel. E3, 30KhGSNA and 25Kh2GNTA steel were melted using AN-291 slag for studying the effect of chemical composition of steel on the recovery of aluminum from slag. The test specimens were cut into oblong templates for studying the chemical heterogeneity of the metal. Variation of average aluminum concentration with respect to ingot height in given. Industrial data shows that the quantity of aluminum recovered from slag increases by 0.01-0.06% as silicon content in the metal is increased from 1.16 to 3.22%. Data on silicon and aluminum content in 30KhGSNASh steel, processed by correlation analysis, show that silicon is responsible for aluminum recovery

Card 1/2 UDC: 669.187.6

ACC NR: AP6032554

from slag. It should be pointed out that the recovery of aluminum during melting is not steady. Aluminum content in the metal increases during the first part of silicon steel melting and decreases subsequently. The decrease in aluminum recovery is explained by the accumulation of silica and a decreasing alumina content in the slag. This brings about a higher silicon concentration and thus decreases aluminum concentration. The use of slag materials which ensure stable aluminum concentration with respect to ingot height make it possible to obtain metal with uniform mechanical and other properties. Orig. art. has: 3 figures, 1 table, 1 formula.

SUB CODE: 11/ SUBM DATE: 19Aug65/ ORIG REF: 002

Card 2/2

LATATUYEV, V.I.; DENISOV, A.D.; KAZAKOVA, V.P.; PESHKOV, O.L.

Use of hydrazine sulfate as a reducing agent in chemical nickel plating process. Izv.vys.ucheb.zav.; khim.i khim.tekh. 7 no.6[illegible]973-975 '64. (MIRA 18:5)

1. Altayskiy politekhnicheskiy institut imeni Polzunova, kafedra neorganicheskoy i analiticheskoy khimii.

LATATUYEV, V.I., kand. tekhn. nauk; DENISOV, A.D.; PESHKOV, O.L.

Using hydrazine sulfate for chemical nickel plating of parts.
Vest. mashinostr. 44 no.8:32 Ag. '64.
(MIRA 17:9)

L 52310-65 EWI(m)/EWP(i)/EWP(t)/EWP(b) JD

ACCESSION NR: AP5008806 S/0080/65/038/003/0534/0537

AUTHOR: Latatuyev, V. I.; Denisov, A. D.; Peshkov, O. L.; Dorfman, E. M.; Zakabunina, N. I. 14 B

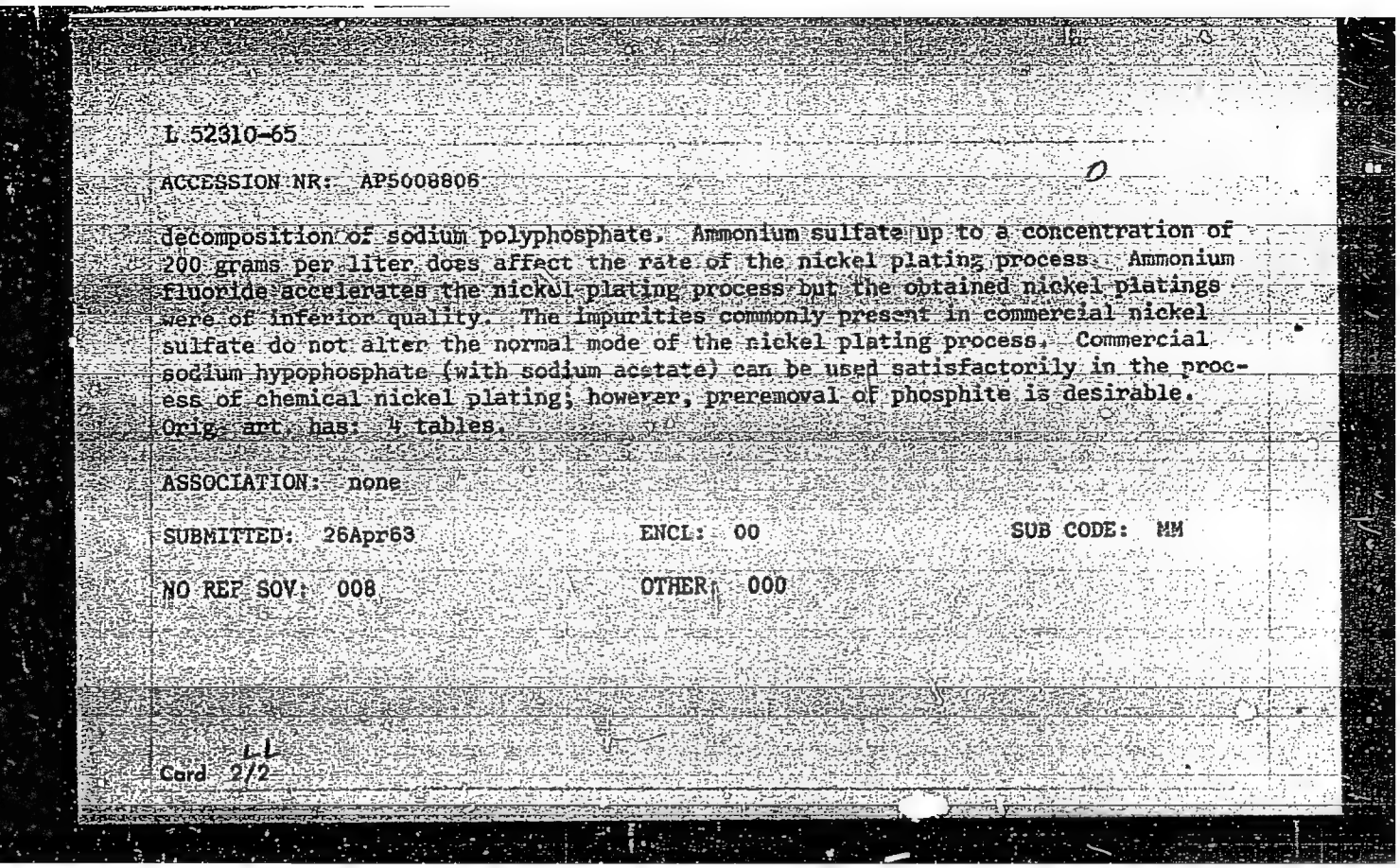
TITLE: Effect of the addition of certain salts on the rate of chemical plating with nickel 13

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 3, 1965, 534-537

TOPIC TAGS: nickel plating, nickel, additive, reagent impurity

ABSTRACT: Chemical nickel plating is widely used because it gives hard and uniformly thick nickel coatings on irregularly shaped metal articles. The effect which impurities in the starting reagents, water and electrolyzer material as well as of those which arise during the plating process have on the rate of chemical plating was investigated. The study covered various concentrations of Na_2SO_4, $(NH_4)_2SO_4$ and NH_4F along with impurities present in commercial samples of these materials. Sodium sulfate, particularly at concentrations higher than 200 grams per liter, has a deleterious effect on the rate because it catalyzes

Card 1/2



L 52310-65

ACCESSION NR: AP5008806

decomposition of sodium polyphosphate. Ammonium sulfate up to a concentration of 200 grams per liter does affect the rate of the nickel plating process. Ammonium fluoride accelerates the nickel plating process but the obtained nickel platings were of inferior quality. The impurities commonly present in commercial nickel sulfate do not alter the normal mode of the nickel plating process. Commercial sodium hypophosphate (with sodium acetate) can be used satisfactorily in the process of chemical nickel plating; however, preremoval of phosphite is desirable. Orig. art. has: 4 tables.

ASSOCIATION: none

SUBMITTED: 26Apr63 ENCL: 00 SUB CODE: MM

NO REF SOV: 008 OTHER: 000

Card 2/2

LATATUYEV, V.I., kand. tekhn. nauk, dotsent; DENISOV, A.D.

Using nickel hyposphite in chemical nickel coating. Vest. mashinostr. 45 no.5:51 My '65. (MIRA 18:6)

ACC NR: AP6035032 (A) SOURCE CODE: UR/0122/66/000/009/0048/0049

AUTHOR: Iatatuyev, V. I. (Candidate of technical sciences, Docent); Denisov, A. D.

ORG: none

TITLE: New alkaline composition for chemical nickel plating

SOURCE: Vestnik mashinostroyeniya, no. 9, 1966, 48-49

TOPIC TAGS: metal plating, electrolytic deposition, electrolyte

ABSTRACT: The samples used in the experiments were of Type 08 steel and copper which, before chemical nickel plating, were subjected to the usual preparation: electrochemical degreasing and pickling in hydrochloric acid. A table shows the results of experiments aimed at determining the optimum concentration of ammonium sulfate in chemical nickel plating. The initial conditions were the following: concentration of nickel hypophosphite 15 grams/liter; t = 80-85°C; pH = 8.2; duration of experiment 1 hour. Under these conditions, the best results were obtained with a concentration of ammonium sulfate equal to 30 grams/liter. Variation of the content of nickel hypophosphite showed that a concentration of 15 grams/liter was optimum. The investigations showed the great effect of the acidity of the solution on the rate of nickel plating. Thus, at a pH of 6, the coating rate was 6 microns/hour at 80-85°C; at a pH of 7-7.2, the rate was 22-23 microns/hour. In conclusion, the following were

Card 1/2 UDC: 669.248.6

ACC NR: AP6035032

found to be optimum conditions for the process using ammonium sulfate in an alkaline medium: 15 grams/liter $Ni(H_2PO_2)_2$; 30 grams/liter $(NH_4)_2SO_4$; pH = 8.2-8.5 (regulated with 25% NH_4OH); t = 80-85°C; coating rate 24 microns/ hour. Orig. art. has: 2 tables.

SUB CODE: 11,07/ SUBM DATE: none/ ORIG REF: 004

Card 2/2

LATAUZOV, A. G.

USSR/Mining - Coal Mining Machinery

Card 1/1

Authors : Shumilov, V. V., and Latauzov, A. G.

Title : Experiment on Use of a Cutting and Loading Machine, Type ShBM - 1.

Periodical : Mekh. Trud. Rab. Ed. 3, 17 - 20, Apr - May 1954

Abstract : The use and testing of a new cutting and loading machine, type ShBM - 1, in Donets coal mines. The tests indicate that the machine is highly efficient, and that 5191 m of shaft were sunk with its aid, in 1953. The author also describes its construction, and presents data on its performance. Tables; graphs; drawings.

Institution : ....

Submitted : ....

LATAUZOV, ALEKSANDR GRIGOR'YEVICH

SHUMILOV, Vasiliy Vasil'yevich; KAPLUNOV, Ivan Zakharovich; TARASENKO, Viktor Ivanovich; LATAUZOV, Aleksandr Grigor'yevich; AFONINA,G., redaktor; VUYEK,M., tekhnicheskiy redaktor

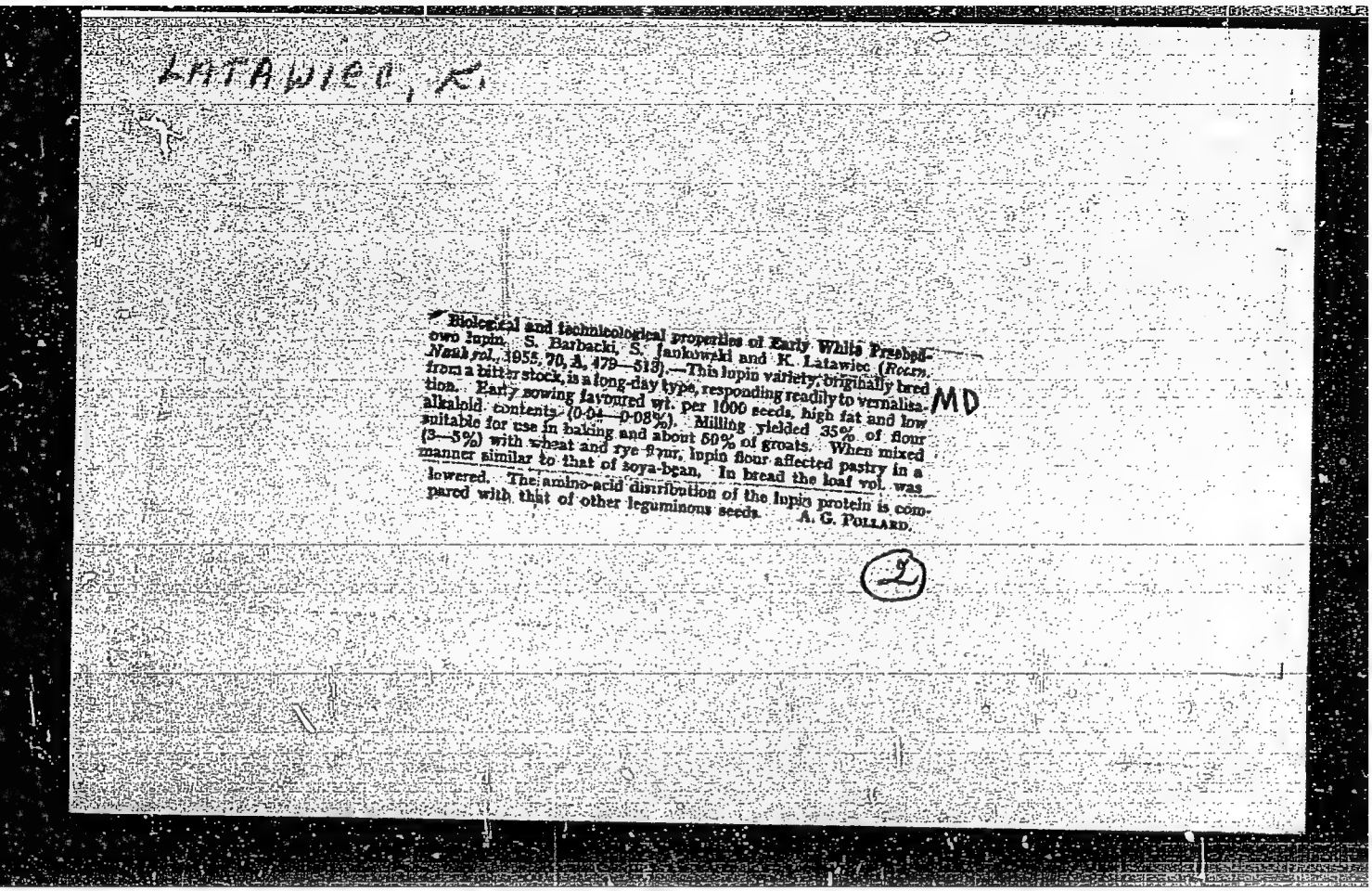
[Work of the ShBM-1 combine in mines of the Donets Basin] Rabota kombainov ShBM-1 na shakhtakh Donbassa. Kiev, Gos.izd-vo tekhn. lit-ry USSR, 1955. 90 p. (MLRA 9:3)
(Donets Basin--Coal mines and mining)

LATAWIEC, K.

The biological and tedhnological properties of early white lupine. In English. p. 213.

MATEMATYKA, Vol. 3, No. 6, 1955, Warszawa, Poland.

SO: East European Accessions List (EEAL), L. of C., Vol. 5, No. 10, Oct. 19=56



LATAWIEC, K.

Biological and technicological properties of Early White Prosbdowo lupin. S. Barbacki, S. Jankowski and K. Latawiec (*Roczn. Nauk rol.*, 1955, 70, A, 479—513).—This lupin variety, originally bred from a bitter stock, is a long-day type, responding readily to vernalisation. Early sowing favoured wt. per 1000 seeds, high fat and low alkaloid contents (0·04—0·08%). Milling yielded 35% of flour suitable for use in baking and about 50% of groats. When mixed (3—5%) with wheat and rye flour, lupin flour affected pastry in a manner similar to that of soya-bean. In bread the loaf vol. was lowered. The amino-acid distribution of the lupin protein is compared with that of other leguminous seeds. A. G. POLLARD.

MD

2

LATAWIEC, Konrad; NIEMIERKO, Jan

High obstruction of the intestine in adult consecutive to malrotation during fetal life. Polski przegl. chir. 28 no. 4:393-399 Apr 56.

1. Z II Kliniki Chirurgicznej Akademii Medycznej w Warszawie Kierownik: prof. dr. J. Mossakowski, Warszawa, ul. Swierczewskiego 67 (II. Klinika Chirurgiczna A.M.).
(INTESTINES, abnormalities,
malrotation in fetal life causing obstruct. in adult (Pol))
(ABNORMALITIES,
malrotation of intestine in fetal life causing obstruct. in adult (Pol))
(INTESTINAL OBSTRUCTION, etiology and pathogenesis,
same)

OTTO, Tadeusz; LATAWIEC, Konrad; LOWY, Krystyna; MANICKI, Jerzy

Experimental studies on early diagnosis of thrombosis. Polski tygod. lek. 14 no.39: 28 Sept 59.

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